

Work Order ID 70046

Wednesday, May 25, 2011 3:21:34 PM



Page 1

Item ID: D407-667-105TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 5/25/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 6/3/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: ✓Date: 11-05-25

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D407-667-145	Rev C

100

0.00



Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

0.00

1-Fill tube with sand & install plugs DT8673 on both ends as per Folio FA249

2-Turn first side as per Folio FA249

3-Blend transition lines only, **do not sand whole tube**:

*Use mill bastard file, brush file repeatedly with file card.

*Do not use sandpaper coarser than 320 grit.

MML 11/06/08

110

0.00



QC

Quality Control

QC1- Inspect dimensions to dimension sheet

Memo

0.00

CML 11/06/08

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng		Sign & Date			

NOTE: Date & initial all entries

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 Mori Seiki Mori Seiki CNC Lathe Large	MORI SEIKI CNC LATHE LARGE Memo 1-Turn second side as per Folio FA249 2-Blend transition lines only, **do not sand whole tube**: *Use mill bastard file, brush file repeatedly with file card. *Do not use sandpaper coarser than 320 grit. 3-Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-145 inside of Cuff(Do not engrave on outside of tube)	0.00 0.00				1	0		
130 QC Quality Control	QC1- Inspect dimensions to dimension sheet Memo	0.00 0.00				1	0		

Mori Seiki 11/06/08

Mori Seiki 11/06/08

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Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

Jm 11-06-13

1 J

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

SAD 11-6-13
TW

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

JP

11-6-13

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Required Date: 6/3/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Identify and stock in Kanban rack <input type="checkbox"/> Location: L/G								
180 	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

SAD
JW

11-6-13

11/6/13

CL 11/6/13

W/O:		WORK ORDER CHANGES						
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NOTE: Date & initial all entries

Picklist Print

Wednesday, May 25, 2011 3:21:44 PM

Page 1

Work Order ID: 70046



Parent Item: D407-667-105TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 5/25/2011

Required Date: 6/3/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:a 08.02.28 new issue EC
IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6010-115		Manufactured	No			110	Each	35.0000	1	1			
-----------	--	--------------	----	--	--	-----	------	---------	---	---	--	--	--



Crosstube Material

Location

Loc Qty

Loc Code

LG

35

38343

35

1

man. l 11/06/07

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng/ Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	70046
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.241	✓		vern	JF-01
	1.865	+0.005/-0.000	1.870	✓		"	
	1.878	+0.005/-0.000	1.882	✓		"	
	1.970	+0.005/-0.000	1.975	✓		"	
	2.030	+0.005/-0.000	2.035	✓		"	
	2.165	+0.005/-0.000	2.170	✓		mic	CNC-04
	0.125	+/-0.010	.125	✓		vern	JF-01
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.010	4.448	✓		vern	JF-01
SIDE B	2.240	+0.005/-0.000	2.245	✓		vern	JF-01
	1.865	+0.005/-0.000	1.870	✓		"	
	1.878	+0.005/-0.000	1.881	✓		"	
	1.970	+0.005/-0.000	1.975	✓		"	
	2.030	+0.005/-0.000	2.035	✓		"	
	2.165	+0.005/-0.000	2.170	✓		mic	CNC-04
	0.125	+/-0.010	0.125	✓		vern	JF-01
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.010	4.448	✓		vern	JF-01
	113.20	+/-0.020	113.220	✓		tape	mm, L-02

Measured by: <i>[Signature]</i>	Audited by: <i>[Signature]</i>	Prototype Approval:	N/A
Date: 11/06/07	Date: 11-06-13	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-105)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	09.06.11	Dwg Rev updated	KJ <i>[Signature]</i>	<i>[Signature]</i>

W/O:		WORK ORDER CHANGES						
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NOTE: Date & initial all entries

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE
THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS
ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 70046
RP11-05-20

RELEASED
03/11/12

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>Q</i>	DART AEROSPACE LTD	
DRAWN	<i>RF</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>Q</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>Q</i>	D407-667-145	SHEET 1 OF 4
APPROVED	<i>Q</i>	TITLE	SCALE
DE APPR.	<i>Q</i>	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

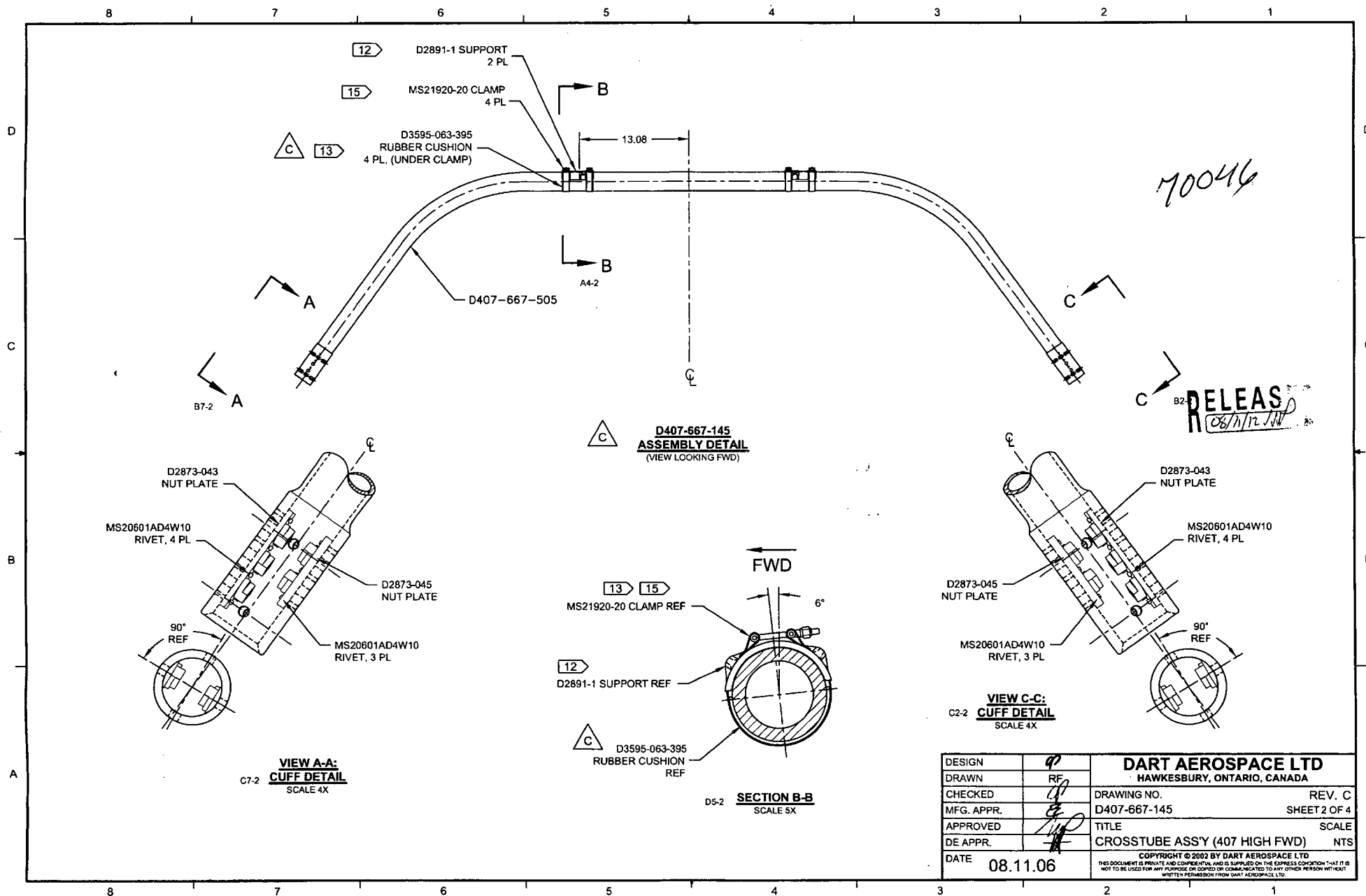
W/O:		WORK ORDER CHANGES						
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DESIGN	7	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	LP	DRAWING NO.	REV. C
MFG. APPR.	EP	D407-667-145	SHEET 2 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
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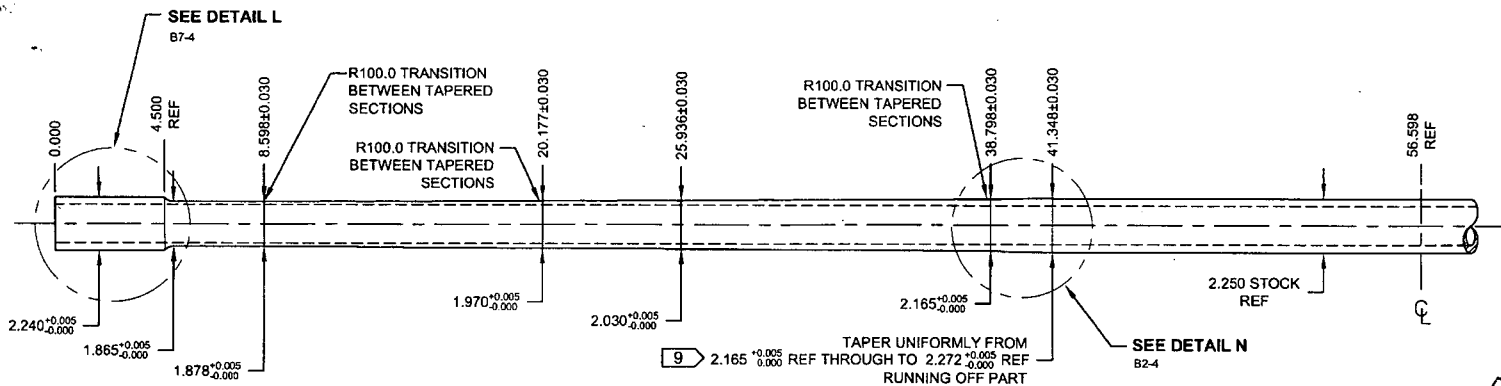
W/O:		WORK ORDER CHANGES						
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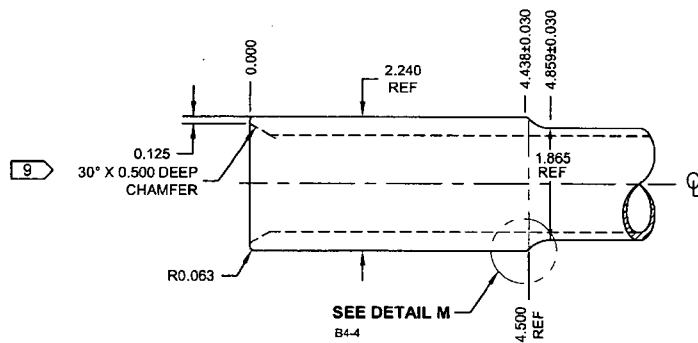
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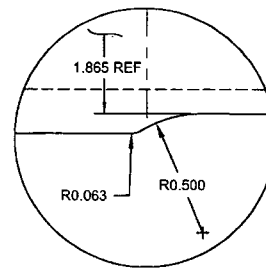


70046

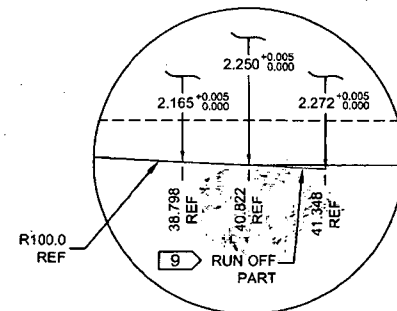
TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
NOT TO SCALE

RELEASED

DESIGN	9	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RE	D407-667-145	SHEET 4 OF 4
APPROVED	RE	TITLE	SCALE
DE APPR.	RE	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
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